

Trucked Biomethane

SB 1383 Dairy Sub-group

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Key Factors to Assess Interconnection Potential

1. **Location** of a biomethane plant relative to gas lines.
2. Whether gas lines have the **capacity** to receive biomethane amounts produced by developers.
3. Pipeline **pressure** at site of potential injection point.
4. Whether customer **gas demands (or load)** near points of injection are sufficient.

PG&E Why Trucked Biomethane?



**Use Trucks
Not Pipe**



Problem:

- System is designed toward delivering gas
- The pipeline needs adequate demand in order to accept biomethane supply
- Biomethane supplies tend to be in rural areas with lower demand, fewer pipes
- Biomethane supplies may be far from a pipeline that can accept their gas
- Building the pipeline may be cost prohibitive

Solution

- Trucks can bring gas to market that otherwise would be cost prohibitive
- Enables more projects
- Lower costs
- LNG/CNG transportation by truck is common industry practice



Waste To Wheel Biomethane Lifecycle

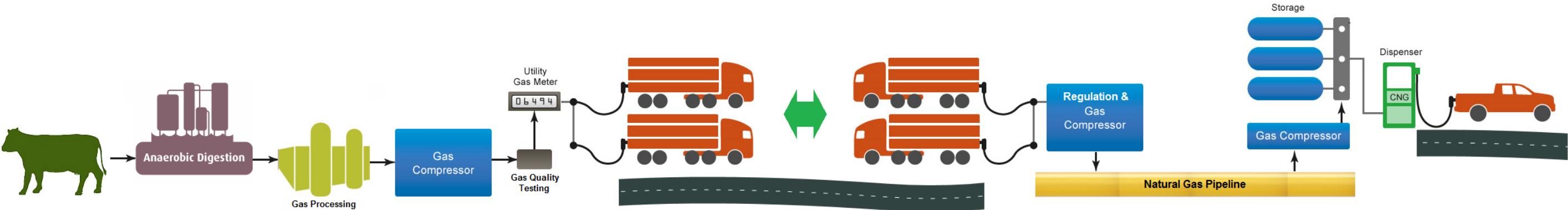
Raw Biogas

Biomethane

BioCNG

Biomethane

BioCNG



Producer Owns
& Operates



PG&E Owns & Operates
(Cost Recovery Discussion)

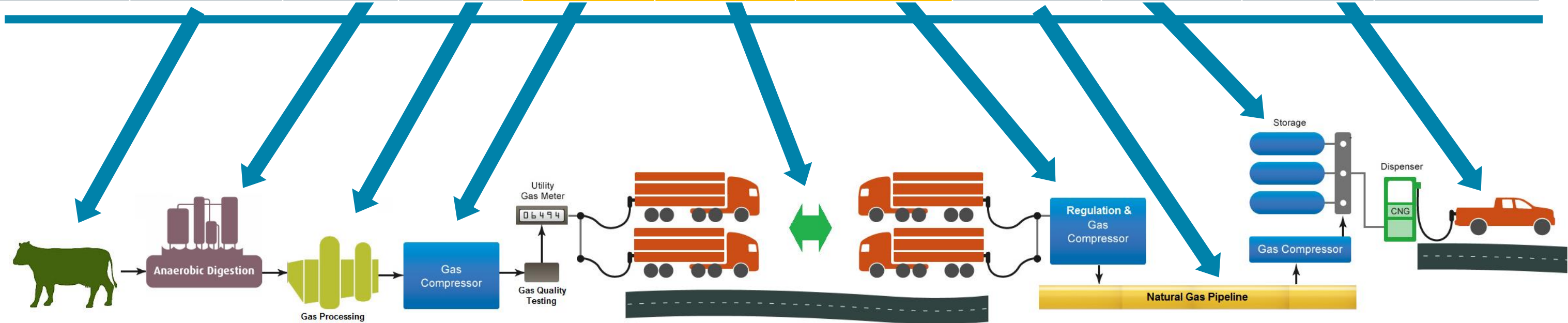
PG&E or 3rd Party
CNG Station



Waste To Wheel Biomethane Lifecycle With Potential Impact To Carbon Intensity

Trucking Impact to Process

Item	Starting Credit From Avoided Methane & CO2 Emissions	Manure Pumping, Solid Separation & Biogas Production	Renewable Natural Gas Upgrading to Biomethane	Renewable Natural Gas Compression into Tube Trailer	Renewable Natural Gas Transportation Via Tube Trailer	Renewable Natural Gas Compression into Pipeline	Renewable Natural Gas Pipeline Transport	Renewable Natural Gas Compression into Vehicle	Renewable Natural Gas Vehicle Usage	Potential Remaining Credit From Avoided Methane & CO2 Emissions
Carbon Intensity g/MJ	-388.16	+4.68	+43.85	+3.98	+3.36	+3.98	+5.01	+3.98	+60.69	-258.63

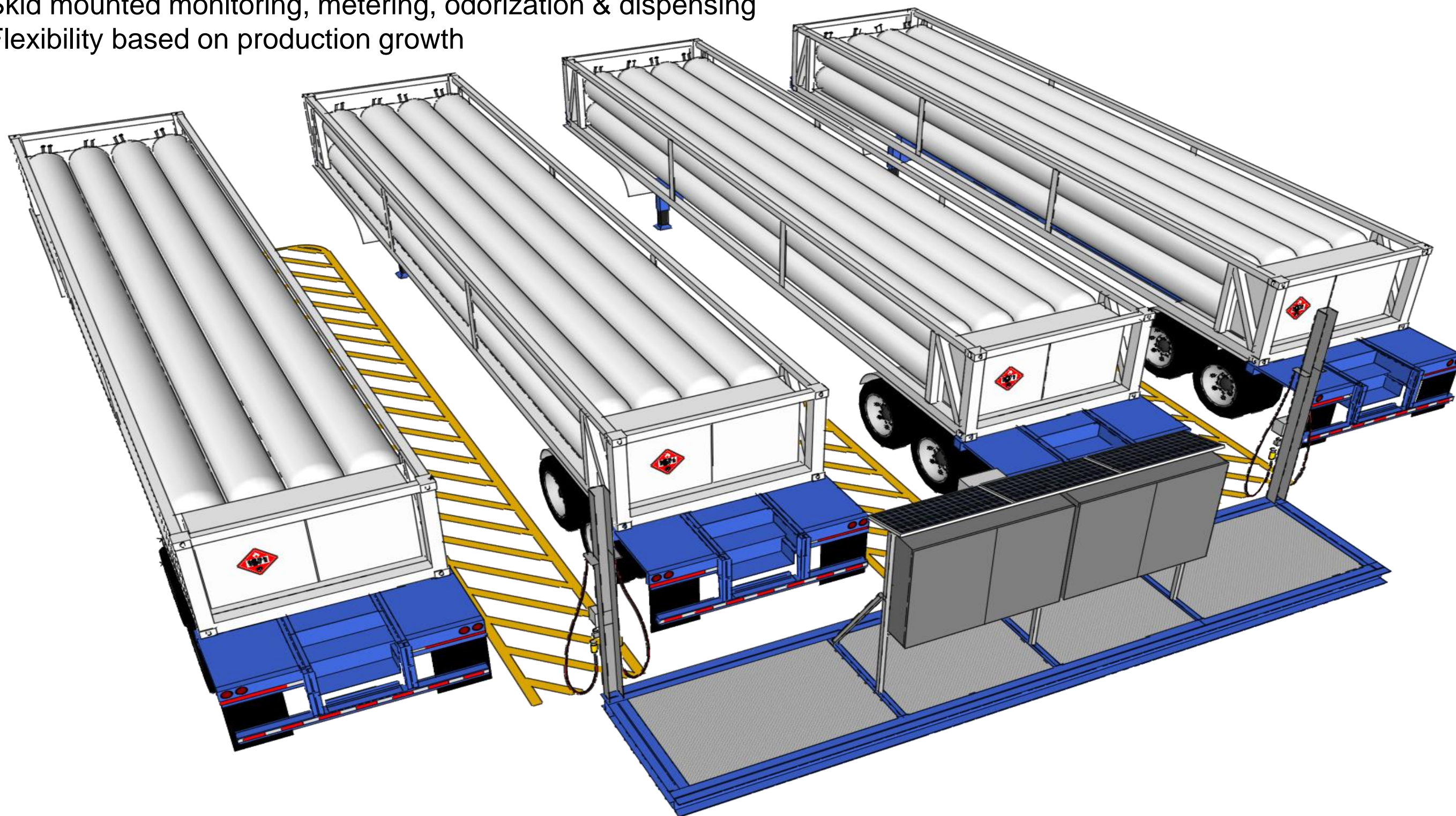


*Shown as example, actual Carbon Intensity will vary for each producer.

Skid with Tube Trailers

Flexible Asset Design

- Skid mounted monitoring, metering, odorization & dispensing
- Flexibility based on production growth



Trucked Biomethane Advantages

- Access to more locations
- Cost effective
- Lower stranded asset risk

Questions???